Providing Teleworker Services

Accessing the WAN – Chapter 6

Objectives

- Describe the enterprise requirements for providing teleworker services
- Explain how broadband services extend Enterprise Networks including DSL, cable, and wireless
- Describe how VPN technology provides secure teleworker services in an Enterprise setting

Describe the Enterprise Requirements for Providing Teleworker Services

- Describe the benefits of teleworkers for business, society and the environment.

Teleworking Benefits

Teleworker Benefits:

Organizational benefits:

- Continuity of operations
- Increased responsiveness
- Secure, reliable, and manageable access to information
- Cost-effective integration of data, voice, video, and applications
- Increased employee productivity, satisfaction, and retention

Social benefits:

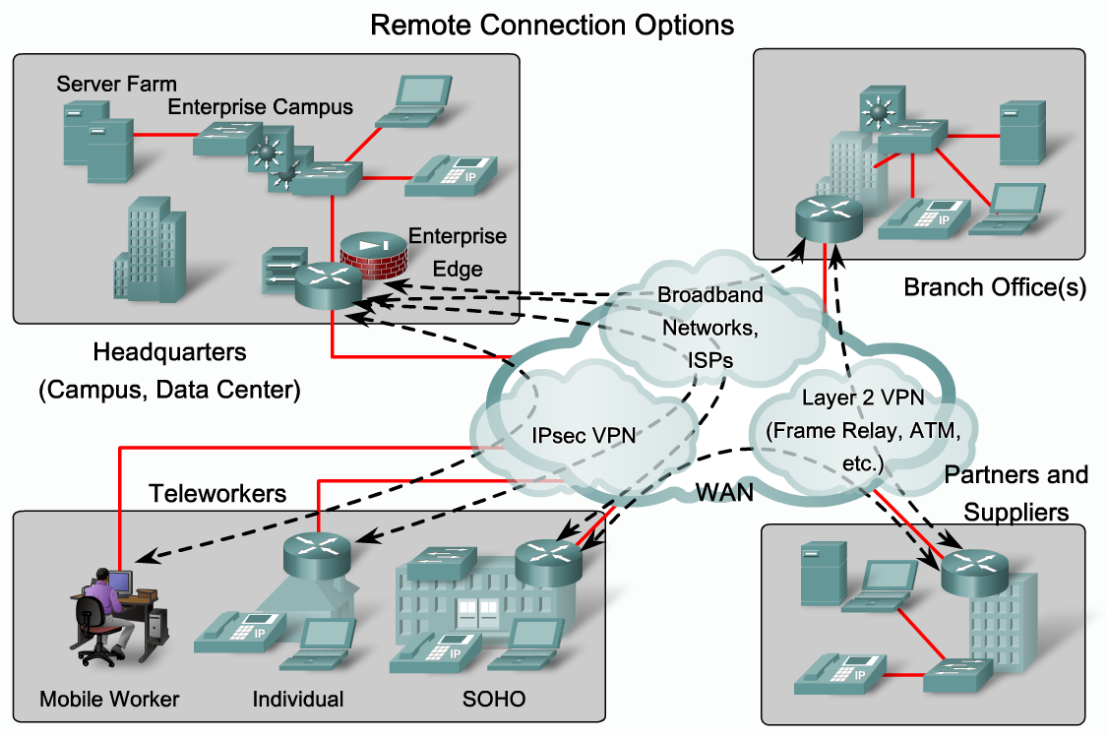
- Increased employment opportunities for marginalized groups
- Less travel and commuter related stress

Environmental benefits:

- Reduced carbon footprints, both for individual workers and organizations

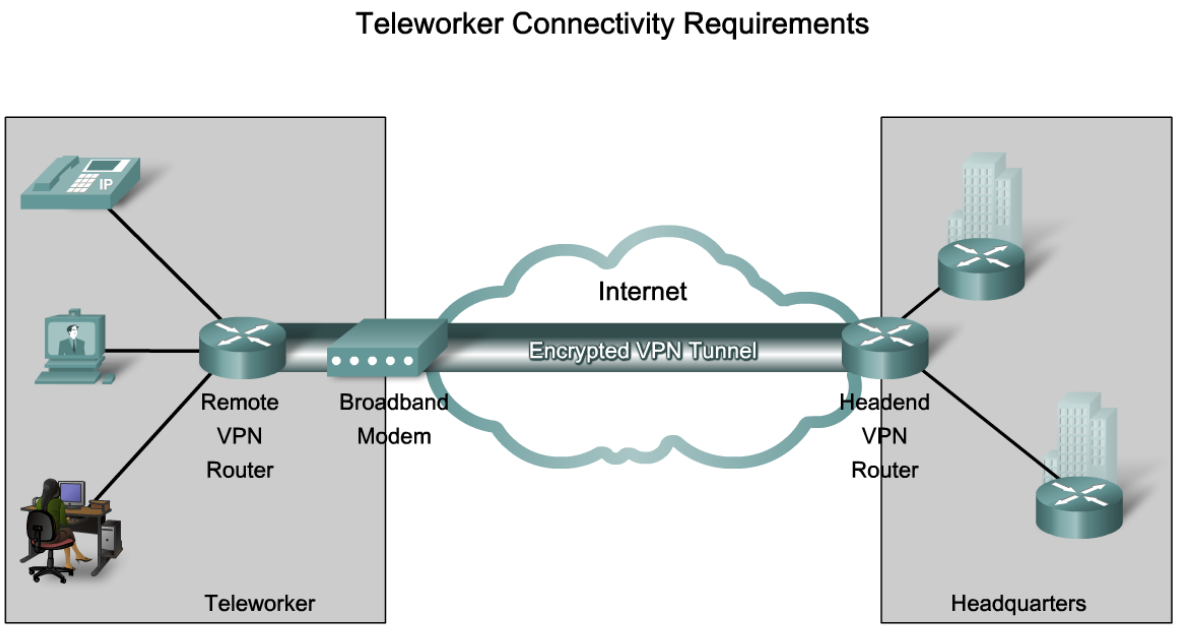
Describe the Enterprise Requirements for Providing Teleworker Services

- List remote connection technologies and describe scenarios in which each would be implemented.



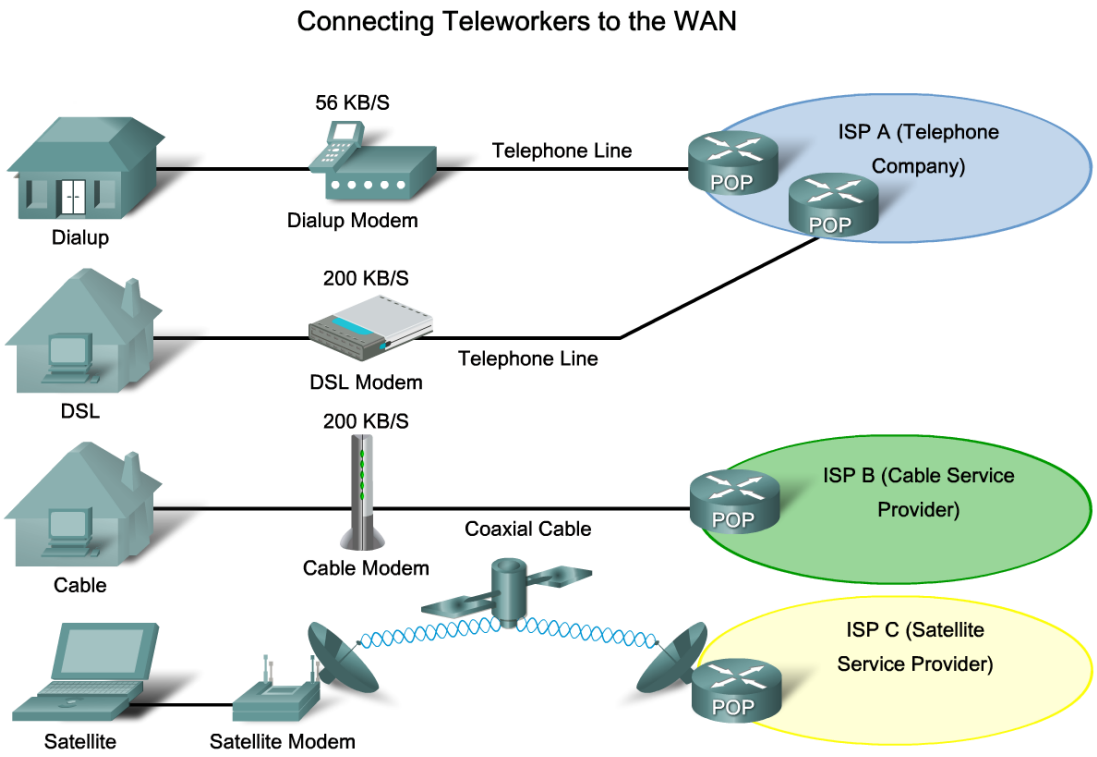
Describe the Enterprise Requirements for Providing Teleworker Services

- Describe the key differences between private and public network infrastructures



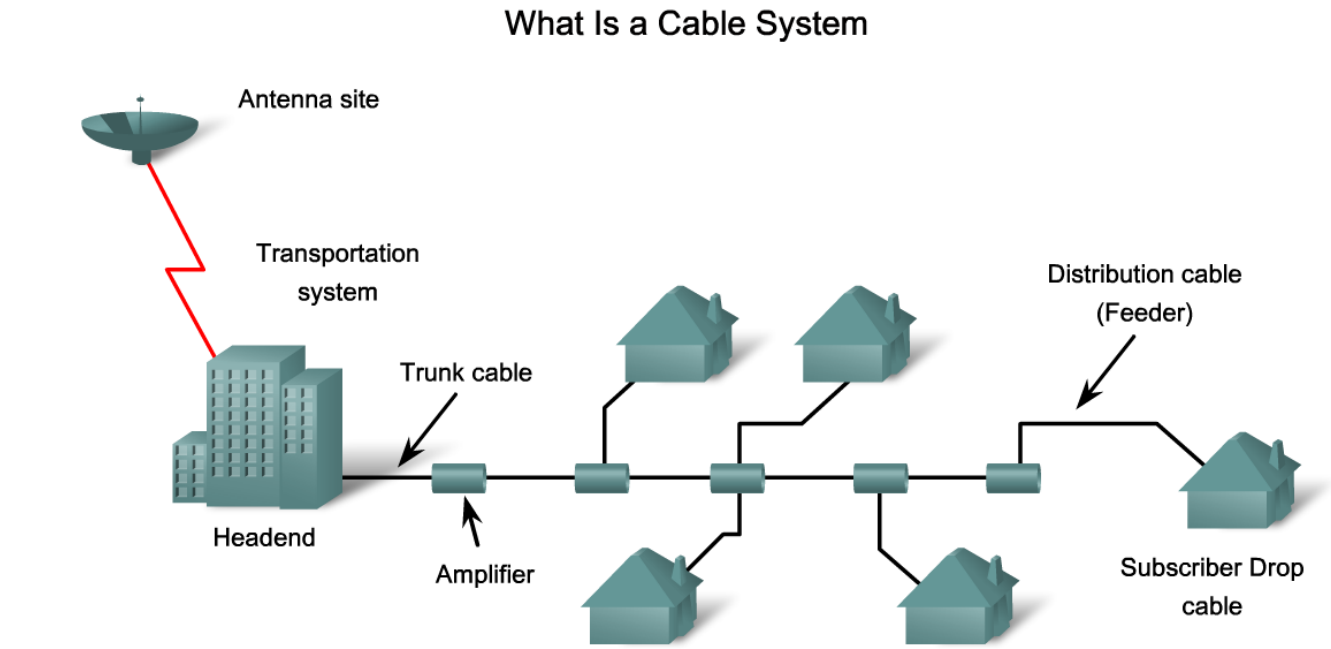
Explain How Broadband Services extend Enterprise Networks

- Briefly describe how broadband services allow teleworkers to use the Internet to connect to the Enterprise WAN



Explain How Broadband Services extend Enterprise Networks

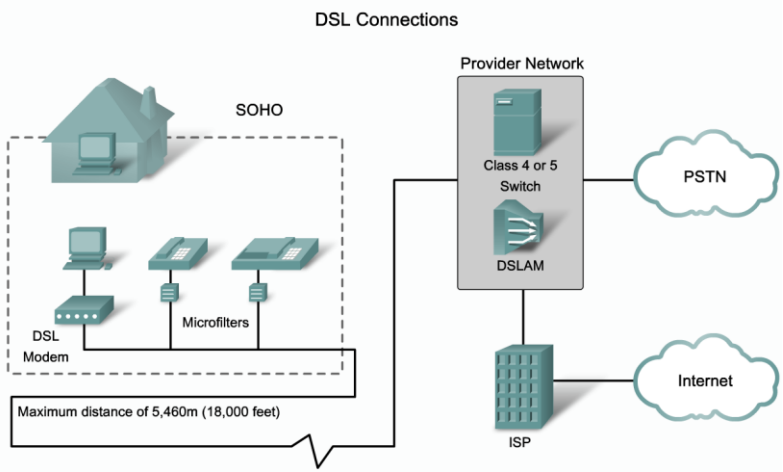
- Describe how Enterprises use cable connectivity to extend their reach

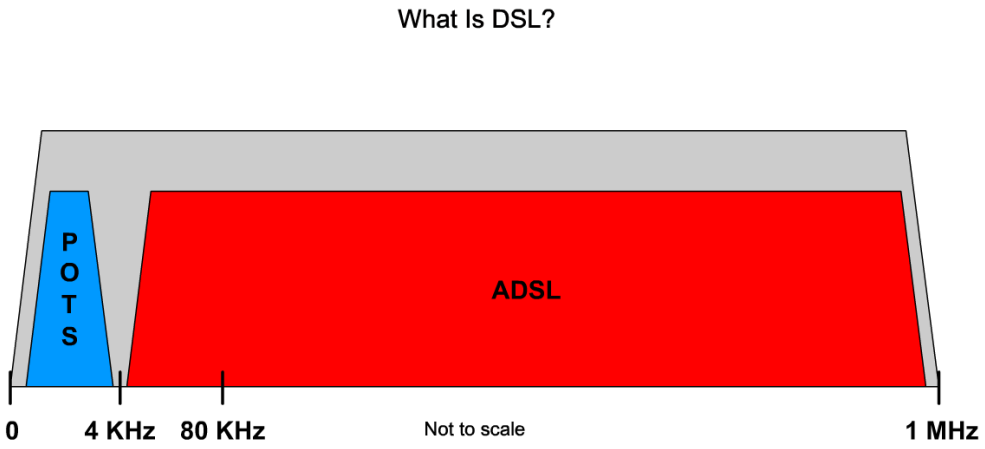


- CATV originally meant "community antenna television." This form of transmission shared TV signals.
- Cable systems were originally built to extend the reach of TV signals and improve over-the-air TV reception.
- Modern cable systems use fiber and coaxial cable for signal transmission.

Explain How Broadband Services extend Enterprise Networks

- Describe how Enterprises use DSL connectivity to extend their reach





- Uses high transmission frequencies (up to 1 MHz)
- Technology for delivering high bandwidth over regular copper lines
- Connection between subscriber and CO

Explain How Broadband Services extend Enterprise Networks

- Describe how Enterprises use broadband wireless connectivity to extend their reach

Types of Broadband Wireless Access

- Municipal Wi-Fi
- WiMAX
- Satellite Internet

Explain How Broadband Services extend Enterprise Networks

- Describe how Enterprises defend themselves from threats to wireless network security

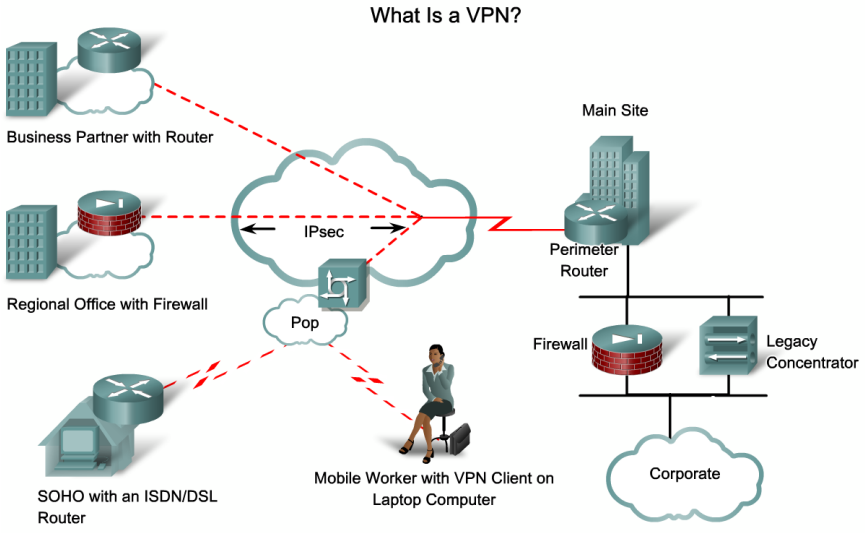
Wireless Standards and Security

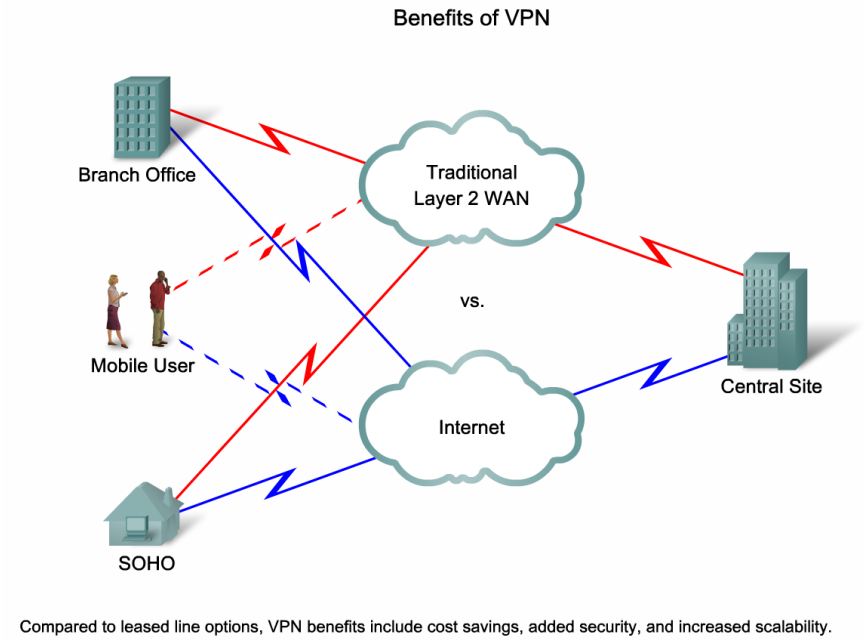
Teleworker equipment generally uses the 2.4 GHz range complying with these standards:

- 802.11b - 11 Mb/s, 2.4 GHz
- 802.11g - 54 Mb/s, 2.4 GHz
- 802.11e > 54 Mb/s, MIMO, 2.4 GHz

Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

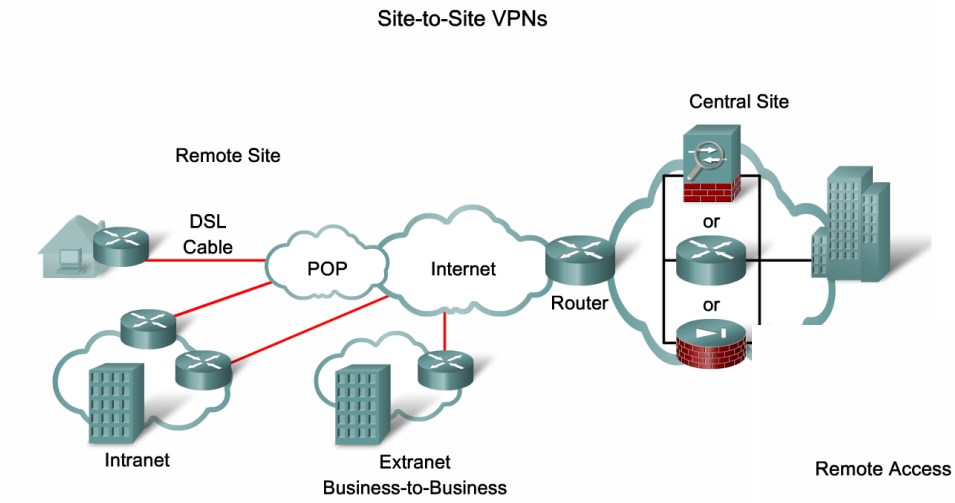
- Explain the importance and benefits of VPN technology



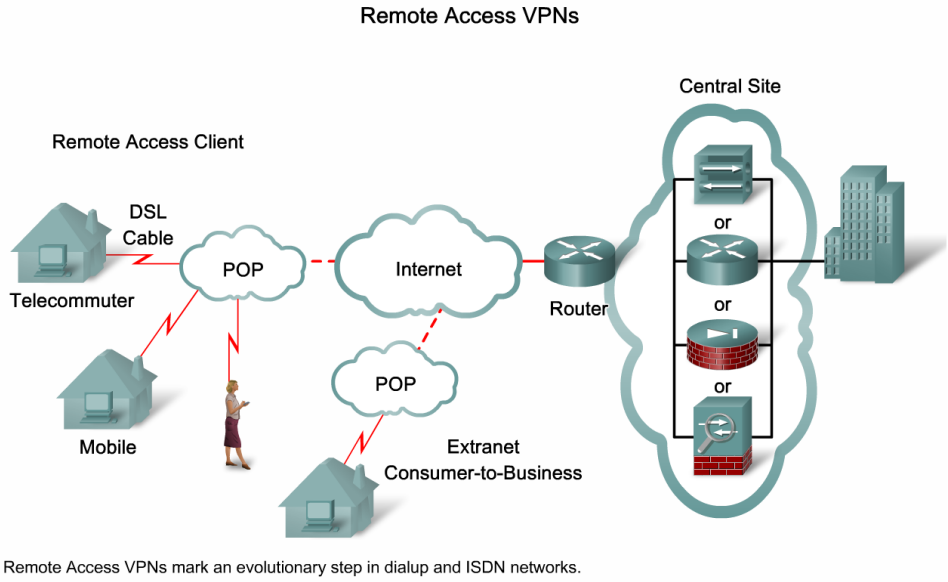


Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Compare site-to-site VPNs to remote-access VPNs



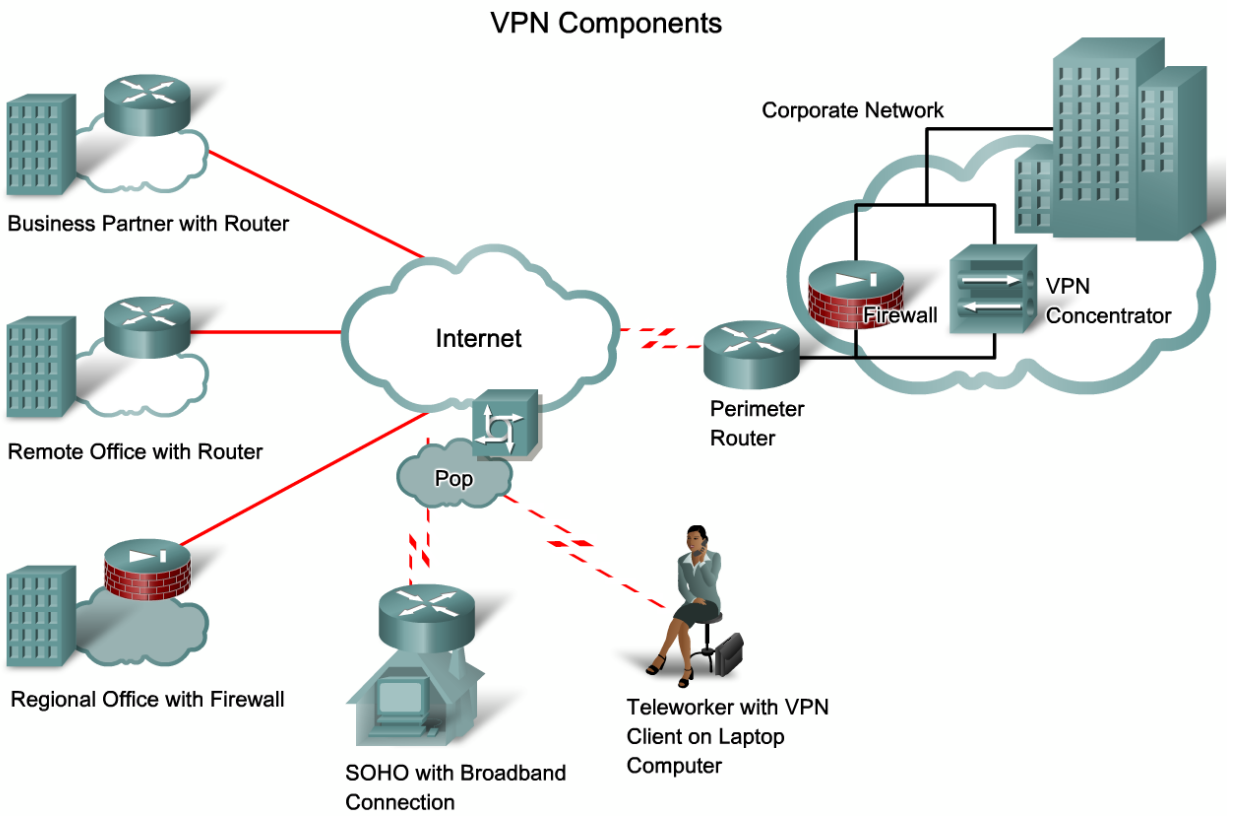
Site-to-site VPNs are extensions of the classic WAN.



Remote Access VPNs mark an evolutionary step in dialup and ISDN networks.

Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Describe the hardware and software components that typically make up a VPN



Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Describe the characteristics of secure VPNs

Characteristics of Secure VPNs

Characteristic	Purpose
Data Confidentiality	Protects data from eavesdroppers (spoofing).
Data Integrity	Guarantees that no tampering or alterations occur.
Authentication	Ensures that only authorized senders and devices enter the network.

Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Describe the concept of VPN tunneling

VPN Security

Tunneling Protocols

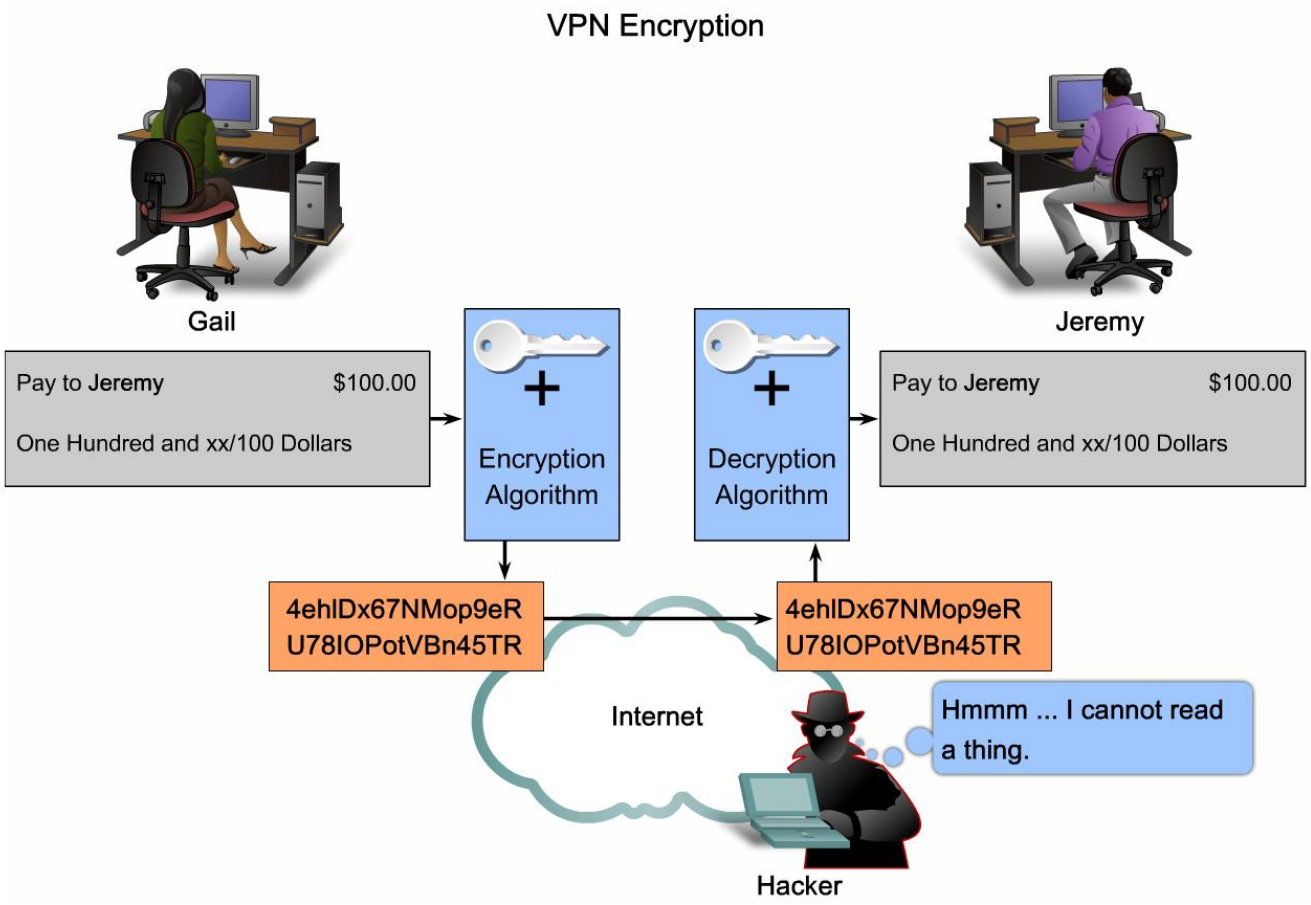
Carrier protocol:
- The protocol over which the information is traveling (Frame Relay, ATM, MPLS).

Encapsulating protocol:
- The protocol that is wrapped around the original data (GRE, IPSec, L2F, PPTP, L2TP).

Passenger protocol:
- The protocol over which the original data was being carried (IPX, AppleTalk, IPv4, IPv6).

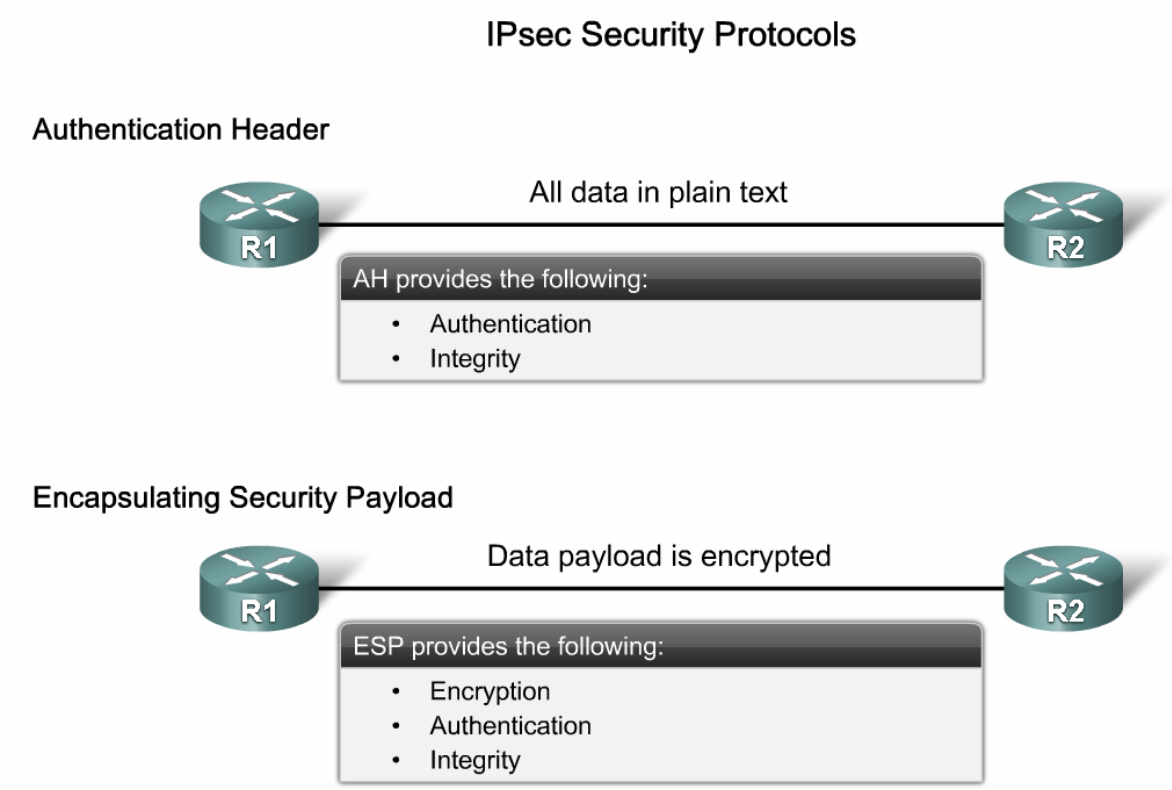
Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Describe the concept of VPN encryption



Describe How VPN Technology Provides Secure Teleworker Services in an Enterprise Setting

- Describe the concept of IPsec Protocols



Summary

- Requirements for providing teleworker services are:
  - –Maintains continuity of operations
  - –Provides for increased services
  - –Secure & reliable access to information
  - –Cost effective
  - –Scalable
- Components needed for a teleworker to connect to an organization’s network are:
  - –Home components
  - –Corporate components

Summary

- Broadband services used
  - –Cable
    - transmits signal in either direction simultaneously
  - –DSL
    - requires minimal changes to existing telephone infrastructure
    - delivers high bandwidth data rates to customers
  - –Wireless
    - increases mobility
    - wireless availability via:
      - » municipal WiFi
      - » WiMax
      - » satellite internet

Summary

- Securing teleworker services
  - –VPN security achieved through using
    - •Advanced encryption techniques
    - •Tunneling
  - –Characteristics of a secure VPN
    - •Data confidentiality
    - •Data integrity
    - •authentication